Midwife, Ms B

Midwife, Ms C

Midwife, Ms D

Obstetric Registrar, Dr E

A District Health Board

A Report by the

Health and Disability Commissioner

(Case 09HDC01592)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

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Executive summary

Background

1. In 2008, Mrs A was pregnant with her first child and employed midwife Ms B as her Lead Maternity Carer (LMC).[1] Mrs A planned to give birth at the maternity unit in her home town. However, when she was 37 weeks gestation,[2] a second growth scan revealed a baby larger than gestational age, and it was recommended that she deliver the baby at the public hospital.

2. Late in 2008, Mrs A went into labour. She travelled with her husband to the local maternity unit, before going to the public hospital. They arrived at the hospital at about 2am the following day. Mrs A's labour and their baby's birth were managed by hospital midwife, Ms D, and obstetric registrar, Dr E.

3. At 7.07am, the baby's head was delivered but her shoulders were obstructed. Baby A was delivered at 7.11am, floppy and not breathing. She took her first breath at 24 minutes, after intensive resuscitation. Baby A and her father were flown that day to a neonatal unit in a large public hospital. Mrs A suffered a postpartum haemorrhage and was not well enough to travel to the neonatal unit until the next day. The baby died the following day.

Findings

Ms B

4. Ms B was Mrs A's LMC. She consulted specialists at the hospital when she was concerned about the size of Mrs A's baby and arranged her delivery at the hospital. In my opinion Ms B provided care of an appropriate standard and did not breach the Code of Health and Disability Services Consumers' Rights (the Code).

Ms C

5. Ms C was the locum midwife for Ms B. She assessed Mrs A on the evening she went into labour and arranged her admission to hospital. In my opinion Ms C did not breach the Code.

Ms D

6. Ms D was the hospital midwife assigned to Mrs A. In my opinion, Ms D consulted obstetric registrar, Dr E, appropriately in regard to the management of Mrs A's labour. However, when Ms D strongly suspected the baby was at risk, she had a duty to fully advise the obstetric registrar of these concerns and contact the on-call obstetrician directly when she remained concerned. Ms D did not do so and accordingly did not provide Mrs A with a service of reasonable care and skill, therefore breaching Right 4(1) of the Code.[3]

[1] An LMC is the designated health professional who coordinates a woman's maternity care. An LMC may be a midwife, obstetrician or general practitioner.
[2] The age of the fetus. The normal period of gestation is 40 weeks.
[3] Right 4(1) of the Code states, "Every consumer has the right to have services provided with reasonable care and skill".

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Dr E

7. Dr E was the obstetric registrar on duty at the time of Mrs A's admission and responsible for the obstetric care Mrs A received. Dr E acknowledged that he misinterpreted Mrs A's CTG and failed to take appropriate action in the case of fetal distress. In my opinion Dr E breached Rights 4(1) and 4(2)[4] of the Code. Dr E has apologised to Mr and Mrs A. His letter was sent to them on 17 May 2010.

The DHB

8. I consider that the DHB met its duty of care to Mrs A. They had a consultant obstetrician on call, an appropriately trained and experienced midwife and obstetric registrar, and appropriate policies on CTG monitoring. The DHB is also not vicariously liable for Ms D's or Dr E's breaches of the Code. However, I do consider that the professional hierarchy in the DHB may have inhibited good teamwork and thus affected patient welfare.

Complaint and investigation

9. On 13 August 2009, the Commissioner received a complaint from Mr and Mrs A about the services provided by midwives Ms B, Ms C and Ms D, and obstetric registrar Dr E. The following issues were identified for investigation:

Ms B

- *Whether Ms B provided Mrs A with an appropriate standard of antenatal and midwifery care.*
- *Whether Ms B adequately informed Mrs A about the risks and delivery options of having a large baby.*
- *Whether Ms B adequately informed other maternity care providers about Mrs A and Dr F's recommendations.*

Ms C

- *Whether Ms C provided Mrs A with an appropriate standard of midwifery care including adequacy of information.*
- *Whether Ms C provided other health professionals with appropriate information and documentation when transferring Mrs A to hospital.*

Ms D

- *Whether Ms D provided Mrs A with an appropriate standard of midwifery care.*

[4] Right 4(2) of the Code states: "Every consumer has the right to have services provided that comply with legal, professional, ethical, and other relevant standards."

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Dr E

- *Whether Dr E provided Mrs A with an appropriate standard of care during her labour and delivery of Baby A.*

The DHB

- *Whether the DHB maternity services provided Mrs A with an appropriate standard of midwifery care.*

10. An investigation into the actions of the midwives was commenced on 18 September 2009. On 3 November 2009, the investigation was extended to include the obstetric registrar, Dr E. The parties directly involved in the investigation were:

Mrs A	Consumer
Baby A (dec)	Consumer
Mr A	Complainant
Ms B	Provider/LMC midwife[5]
Ms C	Provider/LMC relieving midwife[6]
Ms D	Provider/hospital midwife[7]
Dr E	Provider/obstetric registrar

11. Information was also reviewed from:

Dr F	Consultant obstetrician
Dr G	Consultant obstetrician
Associate Professor Jenny Westgate	Obstetrician/ACC adviser
Ann Yates	Midwife/ACC adviser

12. Mrs A's antenatal reports, her hospital maternity records, and the clinical records from the large centre neonatal unit were all obtained, together with the ACC treatment injury decision dated 30 November 2009.

13. Independent expert advice was obtained from midwife Mrs Christine Stanbridge (**Appendix A**) and from obstetrician Dr Ian Page (**Appendix B**).

[5] The Midwifery Council advised HDC that Ms B registered as a midwife in December 2007, completed the First Year Practice Programme in 2008, and was engaged in the Recertification Programme at the time the events in this complaint took place.
[6] Ms C registered in December 2006, completed the First Year Practice Programme in 2007 and was engaged in the Recertification Programme at the time the events in this complaint took place.
[7] Ms D registered in 1991 and was engaged in the Recertification Programme. Ms D attended a two-day in-service training on CTG monitoring at the DHB in March 2007. She had been a midwife for 22+ years with the DHB but had spent most of that time in a rural primary care unit. When the unit closed in 2003 she was transferred to the delivery suite where she was initially mentored by a senior midwife.

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Information gathered during investigation

Antenatal care

14. Mrs A was expecting her first baby in 2008. Her LMC was independent midwife Ms B, who qualified as a midwife in November 2007. Ms B practiced with three other independent midwives, including Ms C. Mrs A planned a home birth, possibly in a birthing pool, and physiological[8] management of the third stage.

15. Ms B saw Mrs A for routine antenatal appointments[9], and Mr and Mrs A attended antenatal classes. At 19 weeks gestation, Mrs A had an anatomy scan which showed the baby was nine days larger than expected for gestational age and provided an estimated delivery date a few days earlier than had earlier been estimated. When she was 28 weeks pregnant, Mrs A's second antenatal blood tests were done. At this time, Ms B also arranged for Mrs A to have Polycose screening.[10] The blood tests revealed low iron and platelet levels. Ms B arranged another test for ten days later. When these results showed an even lower platelet count, Ms B phoned an obstetrician who recommended Mrs A have two–weekly tests and an antenatal hospital appointment if her platelet count continued to fall.

16. The following month, the platelet count was 130. A week later, Ms B telephoned the hospital haematologist to clarify the potential impact of the low platelet count for Mrs A during and after the delivery. She was advised that a level of 130 was of no concern.[11]

17. Because the fetus had been identified as being large for dates, a second growth scan was organised and took place when Mrs A was 37 + 5 days gestation. The scan confirmed that the baby was larger than normal for its gestational age (LGA) — in the 95th percentile. As large babies can be a sign of gestational diabetes, Ms B suggested Mrs A have another Polycose screen or glucose tolerance test (GTT).[12] Ms B advised that following a discussion with Mrs A, Mrs A advised she did not want to fast overnight and therefore opted for a second Polycose test but agreed to do a GTT if the Polycose test was high.

Explanation of risks

18. Ms B said she advised Mrs A to give birth at a hospital, because her baby was large and there was a risk of shoulder dystocia.[13] She explained that if this happened a number of manoeuvres could be done to attempt to dislodge the shoulder. In response to Mrs A's questions of what would happen if these manoeuvres were unsuccessful

[8] Natural separation of the placenta.
[9] Approximately every four weeks until 29 weeks gestation, then approximately every two weeks until 36+5 days gestation. After this she was seen at least weekly.
[10] A blood test for gestational diabetes which is routinely done for women over 25 years.
[11] Mrs A's platelet count had been ranging from 126 to 157. The normal number of platelets is between 150 and 400. Most pregnant women have normal numbers of platelets but about eight per cent have a slight drop in their platelet count. The count is below normal if the woman has between 100 and 150.
[12] A GTT is when glucose is given and blood samples are analysed afterwards to see how quickly glucose is cleared from the blood.
[13] Shoulder dystocia occurs when the baby's shoulder becomes stuck under the pelvic rim during delivery.

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she warned her that, in rare cases, the obstetrician may need to break the baby's collar bone to help the shoulder to slip under the pelvic arch. Ms B told Mrs A that shoulder dystocia is very hard to predict and many LGA babies deliver normally. In response to my provisional opinion, Mrs A advised that she does not recall that these manoeuvres were ever explained to her. Ms B also explained to Mrs A that a big baby meant a big placental surface which is associated with postpartum maternal haemorrhage. For these reasons she advised that it would be safer for her and her baby if she gave birth at the hospital maternity unit where obstetric care facilities were readily available.

19. Ms B advised that she did not discuss the possibility of a Caesarean section with Mrs A because that is the obstetrician's decision. Although going to the hospital meant a significant change to her initial birth plan, Mrs A agreed to the changes. Ms B advised that, in accordance with the obstetric referral guidelines, she recommended a consultation with an obstetrician. Because she was unable to secure an appointment at the local antenatal clinic for the following day, and it would take too long to organise an appointment at the hospital's antenatal clinic, she contacted consultant obstetrician Dr F at the hospital by telephone. They discussed the results of the scan, both Polycose results, the need for a GTT, and the birth plan. Dr F advised that GTT was not necessary in light of the normal Polycose tests, and recommended the following management plan.

"
- Birth [hospital]
- [Intra venous] Luer
- Active mgmt
- Notify team re pos. shoulder dystocia risk
- Not to go over term. Book for induction @ 40 weeks.
- Suggested cervical sweeps twice weekly from now.
- Monitor baby movements."

20. Ms B has advised that she asked Dr F if she should try to arrange an urgent appointment for Mrs A to be seen at the hospital's obstetric clinic but Dr F considered that this was not necessary as an appropriate management plan had been developed.

21. Ms B said she explained the change in plan to Mrs A, including the need to deliver the baby by the estimated birth date, by induction if necessary, and that Dr F recommended cervical sweeps.[14] Thereafter, Mrs A had cervical sweeps twice a week. Ms B said she offered Mrs A several appointments for induction and they settled on a date.

22. Ms B telephoned the delivery suite and the hospital midwife booked the induction. Ms B has advised that she did not record the name of the midwife with whom she spoke. Ms B told the hospital staff she would be away until the day before the planned induction and would be back to do the induction on Monday morning. She said she told the hospital midwife that Mrs A was being induced at term because her baby was large for gestational age. She believes she mentioned the expected weight of the baby. Ms B told the midwife about the change in Mrs A's birth plan and that the

[14] A non-invasive procedure to stimulate labour.

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documentation would come through the internal mail system. She also said she had booked locum midwife Ms C to be available should Mrs A's labour start earlier.

23. Ms B said she changed Mrs A's birth plan, copied Mrs A's Maternity Assessment form (booking form), the 20-week anatomy scan and the 37-week growth scan and put them in an envelope addressed to the person responsible for making the booking on the computer and filing the documentation at the Women's Health Unit at the hospital. Ms B attached a note to the documents saying that Mrs A needed to be booked urgently because she was delivering in hospital and was already almost 38-weeks pregnant. She said she may have included the results of the Polycose screen and blood tests because they were relevant, but she could not be sure. Ms B said that she put the envelope in the internal mail system at the Maternity Unit for delivery to the hospital. The DHB advised HDC that those papers have never been found.

24. The midwives have a system where they instruct their clients to carry their own MMPO records (mother's clinical records) and take them to the hospital should it become necessary.

25. Mrs A had her MMPO notes and knew she had to take them with her to the hospital. Written in the MMPO notes was the birth plan, and information about the IV luer, active management of placenta and consultation with Dr F, the latest Polycose results, platelet results, estimated fetal weight and amniotic fluid index.[15]

26. Ms C said that the midwives meet weekly to discuss "cover" for those on leave. It was at one of these meetings that Ms B handed over Mrs A's care to Ms C. Ms B told her the scan had revealed the baby was LGA, that she had discussed this with Dr F, and Mrs A was booked for induction and delivery at the hospital.

Labour and delivery

27. A few days prior to the planned induction, Mrs A went into labour spontaneously and called Ms C. Ms C arranged to meet Mr and Mrs A at the local maternity unit. They arrived soon after midnight.

28. Ms C examined Mrs A noting that she was fully effaced,[16] 3cm dilated, and with bulging membranes. She recorded, "FHR [fetal heart rate] 130–155bpm [beats per minute] – decelerations ↓ 90bpm during contractions – quick recovery". At 12.20am the FHR was 135–144bpm with no decelerations[17] during a contraction. Ms C documented her findings in the MMPO notes and reminded Mrs A to take them with her.

[15] Amniotic fluid index is an estimate of the amount of amniotic fluid and is an indication of fetal wellbeing.
[16] Dilation and effacement refer to the condition of the cervix during pregnancy and labour. Dilation is the opening of the cervix and effacement is the thinning of the cervix during labour. Dilation and effacement can occur simultaneously. Generally, the cervix of a woman having her first baby will efface before it dilates. In subsequent pregnancies the cervix may dilate before effacing.
[17] Periodic decreases in the fetal heart rate resulting from pressure on the fetal head during contractions.

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29. Ms C recorded at 12.30am, "Dr G[18] notified + D/Suite". She faxed her assessment to the delivery suite and asked them to remove Mrs A's name from the induction list. Ms C said she told Mr and Mrs A the hospital were "aware of her imminent arrival". Mr and Mrs A left the maternity unit at 12.45am.

30. Mr and Mrs A said that when they arrived at hospital they were met by Ms D who told them the hospital did not have Mrs A's notes, only a booking for an induction. As Mrs A had her MMPO notes with her, Ms D referred to these records for the history of the pregnancy.

31. Ms D took Mrs A's baseline observations, her temperature, pulse, respiration rate, blood pressure, and tested her urine, all of which were within normal limits. Ms D advised HDC she tried to assess the baby's presentation but Mrs A was "all baby". Ms D recorded:

> "[date]. Phone call from [Ms C] (locum for Ms B). [Mrs A] is labouring and has been advised to deliver in [Hospital] – booked for IOL [induction of labour]. Mon [date] 2.00 [Mrs A] has arrived in unit. Not booked in. CTG commenced. U/T [urine test] Prot[ein] ++ Ket[ones] +."

32. Ms D attached the CTG to record the baby's heart rate and left it recording while she went to look for Mrs A's notes but could not find them so she used Mrs A's MMPO notes. When Ms D returned she noted variable decelerations and reduced baseline variability[19] of fetal heart rate on the CTG. As this was a large baby, Ms D called the on-call obstetric registrar, Dr E immediately.[20] Ms D said that Dr E queried the variable decelerations on the CTG trace but he "felt the baseline and overall variability were normal".

33. Dr E examined Mrs A at about 2.40am. He said that he was not given any specific information about Mrs A, just that she was carrying a large baby and had been advised to birth in hospital. Dr E advised that the information was supplied by the midwife, rather than from his perusal of Mrs A's notes. Dr E found Mrs A was in established labour, contracting about three to four times in ten minutes. He noted that the fetal parts were not easily appreciated because there was "generous liquor". In the clinical records Dr E noted that on vaginal examination Mrs A's cervix was fully

[18] Dr G was the on-call obstetric consultant. He left the DHB's employ in March 2009 for a position overseas. He has not been contacted to provide a statement about this case.
[19] Fetal heart rate variability is considered to be one of the most reliable indicators of fetal wellbeing. Baseline variability (the normal variation of the fetal heart rate within the normal range) increases when the fetus is stimulated and slows when the fetus is asleep. Decreasing variability indicates the development of fetal distress. Absent variability is a severe sign and indicates fetal compromise.
[20] Dr E was an obstetric registered trainee who had almost completed 3¾ years of the four years needed for membership with Royal Australian & New Zealand College of Obstetricians and Gynecologists (RANZCOG). He had a supervisor at the hospital in 2008 whom he met every three months for formal feedback and assessment of clinical performance.

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effaced, and dilated to 5–6cm with bulging membranes. Dr E ruptured the uterine membrane and noted that the draining liquor had some old meconium staining.[21]

34. In Dr E's later statement to the DHB's sentinel event investigation team, he said he noted grade 2 meconium staining after he ruptured Mrs A's membranes and, "the plan was to continue the CTG monitoring for a further ten minutes and, if normal, the patient was to try hydrotherapy for pain relief". He also said, "I advised intermittent auscultation[22] of the fetal heart." However there is no record of this advice in the clinical notes. The notes record "? Variable decels". The only plan noted is "pain relief PRN – Reassess 0530-0600".

35. Dr E planned to reassess Mrs A some time between 5.30am and 6am. He advised HDC that after assessing Mrs A he had no cause to change the plan. He said he knew the risks of complications and was keen to check the progress of her labour.

Ongoing care

36. Ms D advised that Dr E's "overall assessment was there had been good progress, and therefore allow the labour to progress normally". Ms D documented:

> "Up into bath. No further mec[onium] liquor — now light reddish. FH [fetal heart] satis[factory]. Contractions continue 2–3 mins lasting 50–70 secs — CTG Toco kept slipping off fundus & not tracing accurately. 2.30am in and out of bath /bowel pressure loose motions 03.00 FH by Doppler 144[bpm]."[23]

37. Dr E advised HDC that he believed the progress of Mrs A's labour at 2.40am was "entirely satisfactory", as she had been in spontaneous labour for seven and a half hours and had reached cervical dilatation of 5–6cm and full effacement in that time. He said that he had noted the presence of meconium stained fluid during the assessment and "a suspicious CTG (i.e. one feature non-reassuring, but all other features reassuring)". Dr E stated that he ensured that Mrs A had intravenous access and that all her blood work had been done. He also ensured that continuous CTG monitoring was in place, and told Ms D that he planned to reassess the progress of the labour in three hours to ensure adequate progress of cervical dilation. Dr E stated, "My expectation was also that the midwives would be alert to any concerning features e.g. decelerations, change in baseline rate, or reduced beat-to-beat variability in the meantime and would advise me accordingly."[24]

[21] Rupturing the uterine membrane stimulates labour. Meconium-stained liquor (amniotic fluid) can be a sign of fetal distress. Liquor stained with old meconium indicates the fetus has suffered a previous stress.
[22] The act of listening, with a stethoscope, to the fetal heart rate.
[23] A Doppler monitor is an instrument used to listen to the fetal heart rate.
[24] The DHB policy on CTG monitoring follows the Royal Australian and New Zealand College of Obstetricians and Gynaecologists' guidelines which states that women with abnormal CTG and meconium stained liquor should have continuous CTG recordings.

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38. Ms D told HDC that she and Mrs A were "cheered by [Dr E's] assessment". Ms D left Mrs A in the pool while she attended to two other rapid deliveries.[25] Ms D explained that while Mrs A was in the spa bath the CTG strap kept slipping off and she was unable to record the contractions. Sometimes Mr A held it in place. By 3am Mrs A's pain level was increasing and Ms D gave her Entonox (pain relieving gas) which she used effectively. Ms D checked the FHR by Doppler at 3am and 3.30am (144bpm and 140bpm). At 4am, Mrs A was in bed and the FHR had increased to 158bpm. Ms D called Dr E to assess Mrs A.

39. Ms D told HDC that although she was concerned about Dr E's first CTG interpretation at 2.30 am she felt it was "OK" and allowed "room to move". She said Dr E was "a bit bewildered why she got him to check but she was erring on the side of caution". She said she asked him to review Mrs A at 4.10am, 4.20am and 6.00am because of "intuition/gut feeling". Ms D said she felt things were not well but he "pooh poohed it".

40. At 4.10am, Dr E noted Mrs A was "coping well", she was now 7cm dilated, at station 0,[26] with no caput or moulding,[27] and making good progress in the first stage. He recorded, "OK for epidural if requested. Reassess 07.00 or sooner".

41. The records show the CTG was restarted at 4.14am and was continuous from that time but the strap kept slipping off and the trace quality was poor. However, Ms D was able to detect the increasing FHR (184bpm) and reduced reactivity. Ms D had attended a two-day in-service training programme on fetal monitoring in March 2007. She told HDC she recalled thinking to herself at 4.14 am "whoops got a problem" but the feeling was intuitive with no firm evidence.

42. At 4.20am, Ms D called Dr E to review the CTG again. Dr E confirmed that he personally viewed the CTG at 4.20am when he was "alerted by the midwife to a raised baseline". However, he did not write his assessment in the notes. Dr E recalls that he noted the fetal heart baseline rate to be slightly above normal at 170 to 180bpm with normal variability and no decelerations, "in keeping with a suspicious but not pathological pattern". Dr E said he prescribed intravenous fluids for Mrs A, "thinking that this pattern might be due to maternal dehydration". As he left he discouraged Mrs A from pushing.

[25] Ms D delivered or assisted in four births that night (at 12.23am, 3.06am, 4.41am and 7.11am); two babies were delivered as their mothers arrived in the delivery suite. Ms D was rostered with one other midwife in the labour unit and two midwives and an enrolled nurse in the post delivery ward.
[26] Station refers to the relationship of the presenting part of the baby to the level of the ischial spines (outlet) of the mother's pelvis. When the presenting part is at the level of the ischial spines, it is at station 0 (synonymous with engagement). If the presenting part is above the spines, the distance is measured and described as minus stations, which range from -1cm to -4cm. If the presenting part is below the ischial spines the distance is measured as plus stations (+1 to +4). At +3 or +4 the presenting part is at the perineum (synonymous with crowning).
[27] Caput is a temporary swelling of the baby's scalp due to compression of the baby's scalp on the cervix. Moulding is the accommodation of the fetal skull bones to facilitate passage through the pelvic outlet.

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43. Ms D said that after the infusion of intravenous fluids the baby's heart rate fell to 160/170bpm within about 40 minutes but the variability remained unchanged. Ms D advised HDC that she thought the CTG showed "poor variability consistently, with the baseline hovering around 160/170 mark throughout the rest of the shift".

44. Ms D recorded the baby's heart rate at 4.20am as 184bpm.[28] She recorded the fetal heart rate again at 4.45am when she found it to be 170–176bpm. At 5am Ms D recorded the FHR at 168–172bpm and at 5.15am, 158–160bpm. At that time Mrs A was expressing a strong urge to push.

45. At 6am, Ms D performed a vaginal examination and was able to feel a thin anterior lip of cervix, a small caput and the baby's head still at station 0. She commenced the second bag of intravenous fluid. Ms D recorded the FHR at 158–166bpm. She said that Mrs A was pushing involuntarily but tiring, and unable to sustain the effort of pushing.

46. At this time Ms D asked Dr E to review the CTG again. Dr E recorded the fetal heart rate baseline at 150bpm with normal variability and no decelerations. Ms D said that Dr E said the CTG was "basically alright" whereas, in her opinion, variability was minimal and there were small decelerations and a baseline of around 150bpm without pushing. Ms D said she found Dr E's interpretation of the CTG "perplexing".

47. Ms D documented that between 6.15am and 6.45am the FHR remained at 158–166bpm "after pushing" but Mrs A was exhausted and unable to sustain effective pushing for any length of time. At 6.45am, the FHR was 146bpm. At 7am, Ms D recorded that Mrs A was pushing effectively.

Discussions between Ms D and Dr E

48. There is considerable disparity between Dr E and Ms D in their recollection of what was discussed about Mrs A's CTG and the progress of her labour.

49. Ms D advised HDC that she had several discussions with Dr E between 4.30am and 6.30am, voicing her concern that the CTG was less than optimal. She recalls that they discussed the possibility of shoulder dystocia and the need to consider proceeding to Caesarean section. Ms D believed that only the registrar could telephone the consultant and felt she did not have the authority to do so. Ms D stated:

> "Convention has it that as a midwife you abide by the Registrar's decisions, and the only person to directly contact the consultant on call with issues re a current patient is the registrar.
>
> I spent the latter part of the shift feeling disempowered and fearful of the outcome of the delivery. …"

[28] A normal fetal heart rate is between 105 and 155bpm. The rate fluctuates slightly (5 to 15bpm) when a fetus moves or sleeps. Fetal tachycardia occurs when the rate is 160bpm for more than a minute (for a ten-minute period). Marked fetal tachycardia is more than 180bpm and may be due to fetal hypoxia (lack of oxygen), maternal fever, or abnormal heart rhythm.

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50. Ms D told HDC she "had concerns all along" but previously when midwives have "short circuited" the registrar and consulted the more senior clinician they have been reprimanded for doing so. She "didn't have [the] energy to have [a] series of conversations with the doctor" because she was exhausted. This was the fourth birth she had been involved with that evening. She said she did not specifically ask Dr E to call the obstetrician but she assumed he should.

51. Dr E stated, "I cannot remember the midwife with whom I was working having any concerns or considerations about needing to consult the Obstetrician on call. I am fairly certain that she did not, nor do the notes suggest that she did." He does not recall Ms D asking about a Caesarean section. Dr E said that he did not "at any time" consider calling the obstetric consultant, because he believed Mrs A was progressing normally through the first and second stages of labour and, he "considered the CTG was to be satisfactory".[29] He planned to be present at the delivery.

Baby A's birth

52. At 7am, the maternity staff changed shift. The oncoming midwife who was assigned to relieve Ms D went to the head of Mrs A's bed to act as her "coach". She checked the CTG trace and whispered to Ms D that the trace was showing the maternal heart rate and not the baby's. Ms D stated that her reaction was one of "pure panic" when she realised that at that time there was no trace of the baby's heart beat, so she could not say that the baby's condition was satisfactory. Subsequently a note was made on the tracing "? maternal (written in retrospect PS)".

53. At 7.05 the head was delivered and it became apparent that the labour was obstructed by a shoulder dystocia.

54. Ms D positioned Mrs A so that she could try the McRoberts manoeuvre and a suprapubic-rock manoeuvre to try to dislodge the shoulder and deliver the baby. When these failed she performed an episiotomy (cut to the perineum to widen the outlet) and tried a Wood's manoeuvre, which was also unsuccessful in dislodging the baby's shoulder. The assisting midwife rang the emergency call bell.

55. Dr E advised HDC that he was called to Mrs A's room at 7.07am, and it was apparent that the baby was in distress, as the head had been delivered but there was a shoulder dystocia. He said he initiated an emergency call for the obstetric and paediatric teams, and began manoeuvres to attempt delivery. Dr E stated that he managed to deliver Baby A after about five minutes, and handed her over to the paediatric team. (Baby A was delivered at 7.11am.)

56. Dr E stated that he became aware while attending to Mrs A's third stage of labour (the delivery of the placenta) that there was a prolonged resuscitation being performed on Baby A by the paediatric team, and realised that she was significantly compromised.

[29] Dr E advised HDC he was given an orientation when he joined the hospital which included the means of summoning emergency assistance. He had also completed the "K2 Electronic Fetal Monitoring Programme (a self computer-based resource) provided through [another hospital] in late 2006".

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57. Mrs A's placenta separated spontaneously and was delivered by controlled cord traction. Dr E found a 500ml blood clot adhered to the surface of the placenta. Mrs A haemorrhaged, losing about 1000ml of blood. At about 11am her haemoglobin had dropped to 81g/L (from 132g/L[30] four weeks previously). Mrs A was transfused with four units of blood.

58. Baby A's response to resuscitative procedures was not favourable and she was transferred by air to the specialist neonatal unit in a main centre. Sadly, Baby A died at 5.20am the following day.

Additional information

Independent expert report submitted by Dr E

59. On 26 January 2010, Dr E advised HDC that since these events he had re-examined the notes and CTG tracing and discussed them with senior colleagues. He stated:

> "I have identified that the CTG recording was not within the normal limits that I had supposed at the time. I recognise now that the abnormal CTG should have prompted action in the form of performing a fetal blood sample to determine the fetal condition (at either the review at 0420 or 0600 hrs), alerting the duty Obstetrician, and arranging for urgent delivery which would have been by Caesarean section as vaginal delivery was not imminent. I know that any or all of these actions would have prevented this tragic outcome.
>
> It is now with huge regret I have come to the conclusion that I may not have looked far enough back at the CTG recording at 0600 hours, and not having been warned by the midwife of the abnormal CTG, I was not sufficiently alert to the possibility that things were not going as well as they should have. …
>
> I wish now to apologise to [Mr and Mrs A]. I deeply regret that my error of judgement resulted in the death of their newborn daughter, [Baby A]. It is difficult for me to comprehend their trauma, grief and suffering that must have eventuated from this tragedy, and I am truly sorry for my part in its causation. I also wish to apologise to their wider family, all of whom must be grieving for their loss from that day onwards. I am sorry that [Mr and Mrs A] are not now caring for [Baby A] and watching her grow. I am most sorry for [Baby A], that her life was so brief. I reflect on that morning often and know that [Mr and Mrs A] would be as well, and I hope that in their thoughts they are able to accept my sincerest apologies for what has happened."

60. Dr E asked Associate Professor Westgate to review his actions in relation to the management of Mrs A's labour and the delivery of Baby A. On 28 December 2009, Associate Professor Westgate provided her report to Dr E, which he submitted to HDC.

61. Associate Professor Westgate reported that when she reviewed Mrs A's CTG trace, she noted the trace from 4.14am to 5.45am showed a significant change from the earlier trace, in that the baseline heart rate looked to be around 180bpm. The

[30] Normal adult female haemoglobin is between 115g/L and 155g/L.

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variability was reduced and there were gaps in the recording marked as "loss of contact". The variability became further reduced with "picket fencing" and later the baseline reduces to around 160–170bpm but with an undulating baseline. Associate Professor Westgate stated, "This is a very abnormal CTG." She noted that Dr E had been asked to review the CTG recording at 4.20am, when the fetal tachycardia became obvious. He prescribed intravenous fluids to treat maternal dehydration, but did not return to review the trace again until he was asked to do so at 6am.

62. Associate Professor Westgate explained that causes of such a significant increase in baseline rate are fetal compensation for hypoxia, fetal infection or possibly maternal pyrexia. Drugs are a cause too, but not relevant in this case. She said that maternal dehydration is not a cause of such tachycardia. Associate Professor Westgate stated:

> "I suspect this very large baby was becoming slowly hypoxic as labour progressed. … I suspect that placental function was simply inadequate to continue to provide enough oxygen to such a large baby during labour. The tachycardia and absence of decelerations indicates to me that this was a slow and gradual process through the labour. However, the severity of the tachycardia and the loss of variability should have resulted in some additional assessment of fetal wellbeing such as fetal blood sampling. …
>
> Unfortunately [Dr E] and the midwife caring for [Mrs A] in labour failed to recognise the significance of the fetal heart rate changes and did not take appropriate action to investigate fetal condition earlier. …
>
> What should have happened?
>
> 1. [Dr E] should have been called back by 0440 or 0450 when the fetal tachycardia persisted. He should have made a thorough assessment of the situation which would have included noting maternal temperature etc. He should have either consulted with the SMO [senior medical officer] on call or taken a fetal blood scalp sample to check on fetal condition.
> 2. Given that the above did not occur, at 0600 [Dr E] should have reviewed the entire CTG since he saw it last at 0420. Ideally he would have been concerned enough to either consult with the SMO on call or do a fetal blood sample. Even if he was reassured by the apparent improvement he should have checked back to review the CTG during pushing. The second stage of labour is frequently when fetal oxygenation deteriorates further and [Dr E] knows this because he has been to one of my CTG study days.
> 3. The Midwife conducting the second stage should have applied a fetal scalp electrode to avoid loss of contact and enable fetal condition to be monitored during this critical time of labour. Had she done so she would have observed large severe variable decelerations of the fetal heart rate which would have precipitated a call to Dr E."

63. On 17 May 2010, Dr E provided a written apology to Mrs and Mr A.

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The DHB

64. The DHB policy for CTG monitoring states that, "all practitioners referring to CTGs should be competent in the recording methodology and basic interpretation". They should be familiar with the RANZCOG (Royal Australian and New Zealand College of Obstetricians and Gynaecologists) guidelines for intrapartum fetal surveillance and refer to the algorithm wall chart. The policy lists risk factors, such as Induction of Labour and meconium stained liquor, which requires intrapartum fetal surveillance. The policy also states, "Consult with more experienced staff if there is uncertainty or cause for concern."

65. Furthermore, the policy states:

> "[The hospital's] Women's Health Unit does not support routine intrapartum admission CTG monitoring **unless** the woman has risk factors identified by the RANZCOG guidelines … or on discussion with the on-call Consultant, or when an intrapartum risk factor develops. Women identified as having risk factors or who develop risk factors should have continuous CTG monitoring."

66. The DHB informed HDC that it understood that the duty obstetric consultant, Dr G, was not informed of Mrs A's arrival in the delivery suite, therefore Dr E was the senior person at the delivery. However, midwife Ms C's record is clear that the on-call obstetrician, Dr G, was advised of Mrs A's transfer to hospital from the local maternity unit.

67. The DHB explained that the overall responsibility lies with the consultant on call who delegates primary responsibility to the registrar on duty. The registrar relies on the midwife keeping him/her informed on progress in a timely manner.

Follow-up action

68. The DHB's Operations Manager advised HDC that the DHB conducted an Unexpected Postnatal Death Taproot Cause Analysis into the death of Baby A, and reported the outcome of the analysis on 1 November 2009.

69. The review found that, "The root cause hinges on the interpretation of, and subsequent actions in the use of, CTG traces during labour". The report recommended, "The existing training and monitoring for ongoing competence in the interpretation of CTG traces is strengthened, with a plan for continuous improvement, audit and inclusion of this training as a core competency for staff to be put in place". The report also noted that one interview conducted suggested that there had been "clinical disagreement between those on duty as to the management of labour". However, there was no record of any clinical disagreement in the clinical notes, and the review team did not discuss this point further.

70. As a result of these findings, the DHB now has a mechanism for managing clinical points of difference to ensure that appropriate advice and further verification is sought. Where differences of opinion exist, the difference and resultant actions are documented. It is also expected that the Clinical Director or Director of Midwifery

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will be informed or an incident form lodged.[31] The DHB noted that a review of the philosophy behind early warning scores and the barriers for staff (either perceived or real) in seeking advice after hours may be useful in further developing this policy.

Midwifery concerns re the DHB's maternity booking system

71. Ms B advised HDC that since these events she has had considerable concerns about the DHB maternity booking system. If any of her patients are booked into hospital, and there is time, she personally delivers booking documentation to the delivery suite.

72. On 9 October 2009, the local midwives group wrote to the person responsible for booking and filing the documentation at the hospital, voicing their concerns about the systems for transferring women from primary to secondary midwifery services. The midwives advised the booking co-ordinator:

> "We book all the women we care for at [the local] Maternity Unit even if they are planning a home birth, as pregnancy can be unpredictable. In this way if women require a transfer to [hospital] at least the information can be accessed from [the maternity unit].
>
> All women we care for carry their own notes (MMPO) and this includes a care plan which is regularly updated. All women are instructed to bring their notes to the hospital when they commence labour. …
>
> There have been several occasions over the last few years when we have been contacted by Midwives at delivery suite in [hospital] to say that they cannot find the women's notes.
>
> We then ask for the notes [at the local maternity unit] to be faxed to Delivery suite. This is very frustrating as we know that we have sent the information. This involved a duplication of the records, and unnecessary anxiety for all concerned."

73. The midwives asked for confirmation that bookings had been made and a timeframe of when this would occur.

74. The booking co-ordinator acknowledged the midwives' concerns in an email. She stated, "I think there is a much wider issue as not all bookings do get to me". She listed some of the scenarios that occur that prevent her from receiving this information. She commented:

> "Ideally we would like to keep all our notes in one place. … To combat some of this we can now use a new fax number for the Maternity Ward receptionist who now resides in the office almost next to me which is the best guarantee for me during working hours or non-urgent bookings. The only urgent bookings should be those being transferred here unexpectedly in labour."

75. On 13 October 2009, the DHB Director of Midwifery informed the midwives that one central fax number would be used for antenatal appointments and consultations, and

[31] The DHB sent HDC a copy of its flow sheet that accompanies this policy.

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the booking co-ordinator would send the "teranova"[32] record sheet in the internal mail to the local maternity unit.

ACC decision

76. On 30 November 2009, ACC accepted Mr and Mrs A's treatment injury claim on the grounds of "undetected and untreated fetal distress during labour leading to advanced hypoxia at birth on [date] and consequent death [two days later]".

77. ACC midwifery advisor, Ann Yates, advised that it is not uncommon for a baby to suffer from asphyxia as a result of shoulder dystocia and the manoeuvring required to extract the baby. She stated:

> "This is why it is standard to call for a paediatric attendance in anticipation. However, there were signs of fetal distress in labour prior to the birth and shoulder dystocia occurring. She may have already suffered hypoxia during the labour which could have resulted in an asphyxiated baby regardless of the shoulder dystocia. This was missed in my opinion by the team managing [Mrs A's] labour in [hospital]. …
>
> Failure to recognise two critical factors indicating fetal distress − meconium liquor and an abnormal CTG (fetal tachycardia and reduced baseline variability). Failure to adequately monitor when the CTG was abnormal − no FSE[33], no maternal recordings, no toco [monitoring of uterine contractions], no fetal scalp blood sampling – all of which are standard practice and included in guidelines for assessment of fetal wellbeing and fetal monitoring in labour at [the hospital]."

78. Associate Professor Westgate advised ACC that the reason that the baby was flat at delivery and did not respond to resuscitation was because she was already hypoxic at the time of delivery. She considered the CTGs show a non-reassuring trace up to 2.55am with a baseline tachycardia of 160 to 165bpm, no accelerations and very frequent contractions. Despite this, the CTG was discontinued for nearly 75 minutes, when intermittent auscultation was used, but no problems identified. When the CTG was recommenced at 4.40am there was a marked tachycardia of 180bpm with very reduced variability. Associate Professor Westgate commented that the change in pattern was "striking" and attributed to maternal dehydration. She said that she knows of no circumstance when maternal dehydration would cause such an abnormal fetal tachycardia. She said this was a very abnormal CTG, but no action was taken.

79. Associate Professor Westgate stated:

> "In my opinion, [Baby A] became hypoxic in first stage as evidenced by her progressive tachycardia and reduced variability but managed to compensate with a tachycardia. However, at the onset of second stage when contractions became stronger the hypoxic stress became much worse. … Unfortunately the quality of the monitoring of her heart rate was so poor that this was not recognised. The warning signs of an abnormal FHR in first stage and two large decelerations with

[32] Confirmation of booking.
[33] Fetal scalp electrode.

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the onset of pushing should have alerted staff that this baby was in trouble and they should have ensured that the fetal heart rate was monitored carefully in second stage. Failure to do so meant her rapid deterioration was not identified."

80. Ms Yates and Associate Professor Westgate both concluded that the cause of Baby A's death was likely to be a hypoxic event that occurred sometime during labour and both agreed that the CTG showed abnormalities from about 4am onwards.

Response to provisional opinion

81. Excerpts from the responses provided by Mr and Mrs A, Ms D, Dr E and the DHB have been added to the report where relevant. Ms C and Ms B did not respond to the provisional opinion.

Dr E

82. Dr E's professional indemnity insurance provider responded on behalf of Dr E. It submitted that while Dr E does not deny that he made mistakes, having had the opportunity to consider the errors he made, he believes that his performance was "adversely affected by the fatigue he was suffering at the time." Accordingly, it was requested that the issue of fatigue be considered as a contributing factor.

83. A statement from a doctor from the New Zealand Resident Doctors' Association (NZRDA) was provided as part of Dr E's response. The NZRDA doctor advised that, in her opinion, given the hours Dr E had worked in the days preceding these events,[34] Dr E would have been "chronically fatigued". The NZRDA doctor further advised that the current research shows that "individuals who are fatigued to this degree are much more likely to make errors … Fatigue causes impaired vigilance, slowing of cognitive ability and slows reaction times. Sustained wakefulness produces progressive impairment. … Studies also show that those who are sleep deprived are unable to assess the degree to which they are affected by fatigue".

The DHB

84. The DHB submitted that the breach finding in relation to Ms D was "harsh, in that she endeavoured to convey her concerns with the Registrar on several occasions, and that the Registrar failed to listen or to act on this". The DHB requested that, in light of this, the finding that Ms D breached the Code be reconsidered.

85. The DHB was given the opportunity to respond to the issue of fatigue in relation to the rostering of obstetric and gynaecology House Offices and Registrars. In its response, the DHB advised that "During [the four months leading up to this event in] 2008 [the DHB] was running a compliant Registrar roster, that is we had seven Registrars on a 1 : 6 roster template. There was also full House Officer cover for all

[34] The NZRDA doctor,, in her response to HDC, noted that Dr E was rostered to work seven consecutive nights, commencing on a Friday night and finishing on a Thursday night. Each night shift was 10 hours long. He had worked 60 hours in the six shifts before starting work on 5 September 2008. Additionally, Dr E had worked 84 hours during the previous eight days.

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shifts [Dr E] worked during this time." Specifically, the DHB advised that at the time of the complaint Dr E "worked the usual standard rostered hours, including the usual night shift pattern." Furthermore, it advised that:

> "During [Dr E's] employment with [the] DHB, [Dr E's] roster pattern was no different to the other O&G Registrars and the roster was compliant with the provisions of the Collective Agreement.
>
> Leading up to and during the specific period of the incident in [month] 2008 there was a full compliment of House Officers. At no time did [Dr E] raise any issues in terms of his health and well being either before, or following, the event in [month] 2008."

Ms D

86. Ms D provided a written apology to Mr and Mrs A. In her letter Ms D stated that, with the benefit of hindsight, she agrees that her documentation of her verbal communication with Dr E was inadequate.

87. Ms D advised that she ceased practising as a midwife in 2010.

Standards

The New Zealand College of Midwives' Code of Ethics provides:[35]

"Responsibilities to the woman

…

- Midwives are accountable to women for their midwifery practice

…

- Midwives have a responsibility to ensure that no action or omission on their part places the woman at risk
- Midwives have a professional responsibility to refer to others when they have reached the limit of their expertise

…

Responsibilities to colleagues and the profession

…

- Midwives are responsible for sharing their midwifery knowledge with others

[35] http://www.midwife.org.nz/index.cfm/1,179,530,0,html/Code-of-Ethics

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- Midwives are autonomous practitioners regardless of the setting and are accountable to the woman and the midwifery profession for their midwifery practice
- Midwives have a responsibility to uphold their professional standards and avoid compromise just for reasons of personal or institutional expedience
- Midwives acknowledge the role and expertise of other health professionals providing care and support for childbearing women.
- Midwives take appropriate action if an act by colleagues infringes accepted standards of care

…"

Opinion: No breach — Ms B

88. Ms B was Lead Maternity Carer for Mrs A during the antenatal period. Ms B practiced with three other independent midwives.

Risk assessment

89. Ms B conducted routine antenatal appointments for Mrs A throughout her pregnancy. Ms B consulted a hospital obstetrician and haematologist when Mrs A's blood count was low. When Mrs A's second scan revealed the baby was LGA, she telephoned obstetrician, Dr F, to discuss the issues, including the birth plan, and ask whether further diabetes tests were needed. In the meantime, Ms B had alerted Mrs A to the possibility of a change in birth venue, induction of labour, and what an LGA baby could mean in terms of labour and delivery, such as shoulder dystocia and maternal haemorrhage. It was not her usual practice to discuss active intervention, such as Caesarean section, with her clients as she saw this subject the responsibility of the obstetrician.

90. Dr F recommended a management plan for Mrs A to Ms B. Accordingly, Mrs A was booked for an induction to ensure she did not go past her estimated delivery date. Ms B knew she would be on leave for three days prior to the planned induction and arranged for midwife Ms C to be available if Mrs A went into labour before the induction.

91. Mrs Stanbridge, my independent midwifery expert, advised me that Ms B's assessment and documentation were thorough. She appropriately investigated the large baby she had suspected, and confirmed this by doing a second scan. Ms B discussed a change in birth plan with Mrs A, and the risks her large baby posed to herself and her baby.

92. Mrs Stanbridge advised:

> "The common plan for an expected large baby is to allow labour to occur in the expectation the woman will be able to birth normally, as most large babies do.

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> Given that some of these large babies may need assistance with birthing, delivery at a base hospital is usually recommended. It would not be common practice to plan for a Caesarean delivery if there were no other indications."

Referral to secondary care

93. Ms B said that she put all of Mrs A's records that the delivery suite staff would need in the internal mail system, but it appears that these records did not arrive at the hospital maternity unit. However, because the midwives had implemented a system where they encouraged all women birthing in the hospital to take their MMPO notes with them to the maternity unit, Mrs A had taken her notes with her and the hospital staff had access to her antenatal history.

94. It is significant that the rural independent midwives have felt the need to institute a backup system to ensure that the hospital staff have a clinical record when the women present at the hospital. Furthermore, the DHB subsequently acknowledged there were wide problems with the booking system. I accept that Ms B followed her routine practice and sent Mrs A's documentation to the hospital via the internal mailing system.

Summary

95. After reviewing this information and Mrs Stanbridge's advice, it is my opinion that Ms B provided an appropriate standard of maternity care by detecting possible complications early, adequately informing Mrs A of the possible dangers to her and her baby if she followed the original plan, and appropriately transferring Mrs A to secondary maternity services.

Opinion: No breach — Ms C

96. Ms C was the locum midwife covering Ms B while Ms B was on leave. Ms C knew Mrs A's baby was large for gestation dates and that she was to deliver at hospital. Ms C also knew Mrs A was booked for an induction. Four days prior to the planned induction, Mrs A's labour commenced and after assessing her at the local maternity unit, Ms C arranged her admission to the hospital maternity unit. Ms C notified hospital staff, Dr G and midwife Ms D, that she was admitting Mrs A. Ms D confirmed that Dr G had accepted Mrs A to secondary services. Ms D recorded her assessment and the calls in Mrs A's notes which she faxed to the hospital. Mrs A took her MMPO notes with her to the hospital.

97. Mrs Stanbridge stated:

> "[Ms C] appears to have been adequately briefed about [Mrs A's] situation, provided a full assessment of her, identified she was in established labour, notified both the medical and midwifery staff of [Mrs A's] imminent admission and the reasons for this, informed [Mrs A] to make her notes available to [hospital] staff if need be, and documented this."

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Summary

98. In my opinion, Ms C's assessment of Mrs A and her communication with Mr and Mrs A and the hospital was appropriate. Accordingly, Ms C did not breach the Code.

Opinion: Breach — Ms D

99. Four expert advisors have commented on the care provided by Ms D and it is necessary to clarify their roles. Associate Professor Jenny Westgate provided advice to ACC for the purposes of assessing Mr and Mrs A's treatment injury claim and another report for Dr E at his request. Midwife Anne Yates also provided advice to ACC. Independent obstetrician Dr Ian Page provided advice to HDC.

100. Associate Professor Westgate and Dr Page, as well as providing advice on Dr E's management of Mrs A, also commented on the service provided by Ms D. I am mindful that the issue of whether or not there has been a breach of appropriate standards is generally measured against the standards of a reasonable body of the clinician's peers.[36] Accordingly, I obtained and appropriately considered advice from a peer of Ms D, midwife Chris Stanbridge.

Intrapartum care — early labour

101. Ms D was the hospital midwife who monitored Mrs A's labour from the time of her arrival at 2am until Baby A's birth at 7.11am that morning. Ms D had worked for the DHB for over 22 years, the last five in the delivery suite and at the time of these events was supervising other, less experienced midwives. Ms D had attended a two-day training course in CTG interpretation conducted by the DHB in 2007.

102. Ms D had been informed of Mr and Mrs A's pending arrival at the maternity unit. She also knew the reason Mrs A was having her baby at the hospital. When Ms D assessed Mrs A and the baby at admission, she was concerned that the CTG recording indicated that the baby's heart rate was too fast. She noted that the variations in the heart rate were minimal, and the rate slowed during a contraction. Ms D understood that this indicated that the baby could be at risk and contacted the on-call obstetric registrar, Dr E, immediately.

103. Dr E came promptly in response to Ms D's call and, after examining Mrs A, had no concerns and concluded that her labour should progress normally. While he was examining Mrs A he ruptured her membranes to assist the progress of labour. The draining liquor was stained with old meconium.

104. Mrs Stanbridge said that Ms D appropriately assessed Mrs A on admission and monitored her regularly and diligently during the first stage of labour. Mrs Stanbridge considered the CTG (taken from 2.15am) was less than reassuring (but she was not

[36] *Ongley v Medical Council of New Zealand* [1984] 4 NZAR 369, 374, *B v Medical Council of New Zealand* (unreported, High Court, 11/96, Elias J).

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able to be certain about this as she had not viewed the tocogram). Mrs Stanbridge noted that Ms D had concerns, but was reassured by Dr E's interpretation of the CTG.

Intrapartum care — late labour

105. Ms D recorded a FHR of 158bpm (by Doppler) at 4am. She called Dr E, who advised her that it was an uncomplicated fetal tachycardia and that he was not concerned. At 4.14am, Ms D attached the CTG and found it non-reassuring. The FHR was now elevated at 184bpm and less reactive. Ms D called Dr E back, alerting him to the "raised baseline", but he remained unconcerned and decided to treat Mrs A for dehydration. Ms D started Mrs A's intravenous fluids then left to assist with the two other women who were in advanced labour, but continued to monitor Mrs A intermittently. Ms D did not call Dr E again until 6am.

106. Dr Page advised that if dehydration was the cause of the non-reassuring CTG, then the expectation is that there would be an improvement in the CTG within 30 minutes of the administration of intravenous fluid. The situation should be reviewed at this point if this has not occurred.

107. At 6am, Ms D became anxious that Mrs A's baby was not coping well. She told HDC that Mrs A's labour was progressing slowly, the baby was large, and each contraction compressed the baby, cord, and placenta. She said she felt the baby should be delivered and that she discussed with Dr E the possibility of Mrs A requiring a Caesarean section. She did not record the detail of this conversation. She said she did not specifically ask Dr E to call the obstetrician, but assumed he should do so.

108. Ms D said Dr E remained unconcerned and told Ms D that Mrs A was progressing rapidly into the second stage and he expected a normal vaginal delivery within hours.

109. ACC advisor Ann Yates said that Ms D failed to adequately monitor fetal distress because she did not apply a fetal scalp electrode, record the maternal heart rate and tocogram of contractions by continuous CTG recording. DHB policy discourages continuous CTG monitoring as a matter of routine unless maternal and/or fetal wellbeing risk is identified. In this case a number of risk factors were present.

110. My expert, Mrs Stanbridge, advised that applying a scalp electrode is a medical decision, and it "certainly has a place" when there is a poor baby heart tracing and the carer is unsure about what is happening, but this not a midwifery decision to make. Mrs Stanbridge noted that Dr E disagreed with Ms D's findings and believed there was no cause for concern.

111. Ms Yates and Mrs Stanbridge both agree that there were signs of fetal distress in labour prior to the birth. However, Mrs Stanbridge found it very difficult to interpret the CTG in isolation and in retrospect. Associate Professor Westgate stated that the trace from 4.14am to 5.45am showed a significant change from the earlier trace. Dr Ian Page stated that the CTG was recognised as being suspicious by both Ms D and Dr E at the 4.20am assessment. I accept that the quality of the CTG was poor and uterine contractions were not recorded. This was a very active period for Mrs A and the CTG lead kept slipping off.

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112. Ms D stated that she had "several discussions" with Dr E between 4.30am and 6.30am, "voicing [her] concern that the CTG was less than optimal", but she did not document these discussions. The documentation shows that Dr E saw Mrs A at Ms D's request at around 2.40am, 4.10am, 4.20am and 6am. It is reasonable to conclude that Ms D was worried about the CTG, but it is unclear whether she adequately voiced her concerns to Dr E. This Office has previously referred[37] to the decision of Baragwanath J in his decision in *Patient A v Nelson–Marlborough District Health Board*[38] where he stated that it is through the medical record that health care providers have the power to produce definitive proof of a particular matter (in that case, that a patient had been specifically informed of a particular risk by a doctor). This applies to all health professionals who are obliged to keep appropriate patient records. Health professionals whose evidence is based solely on their subsequent recollections (in the absence of written records offering definitive proof) may find their evidence discounted. Ms D should have documented the conversations that took place and her suggestions to Dr E.

113. Mrs Stanbridge noted:

> "When [Ms D] has reached the limit of her expertise and considered there is a problem, she has referred to the person designated to whom she should address such concerns. She has done this repeatedly. In doing so she has met her obligations."

114. Mrs Stanbridge was asked to comment on whether Ms D should have contacted the on-call consultant, Dr G, directly. Mrs Stanbridge considered the circumstances in which Ms D made her decision and advised that fetal monitoring remains an inexact science, but provides indicators of fetal wellbeing. The risks and possible consequences to the baby are always much clearer after the event. Clearly, there were a number of risk factors in this case, such as a large baby, meconium stained liquor and fetal tachycardia, which raised the possibility of fetal distress. However, she considered there was no indication that the size of the baby was hindering Mrs A's labour.

115. Mrs Stanbridge said that each facility has its own protocols on managing non-reassuring CTGs. While the policy may indicate that midwives consult directly with the consultant, the usual practice is to refer to the registrar, who then assesses the situation and plans accordingly. If the consultant was present at the time, the question is easy to answer, but it is a different story in the middle of the night or at the weekend. Mrs Stanbridge concluded:

> "In theory, [Ms D] could have gone over the registrar's head, but in practice it isn't what one could reasonably expect her to do, especially as she was unsure of herself. I believe even an experienced confident midwife would find it difficult to break with normal expectations of chain of authority."

[37] See: www.hdc.org.nz 08HDC10236
[38] *Patient A v Nelson–Marlborough District Health Board* (HC BLE CIV–2003–406–14, 15 March 2005).

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116. In response to my provisional opinion, the DHB submitted that the breach finding in relation to Ms D was "harsh, in that she endeavoured to convey her concerns with the Registrar on several occasions, and that the Registrar failed to listen or to act on this". In my view, if faced with similar circumstances, a midwife acting with reasonable care and skill would seek further assistance.

117. An assessment of Ms D's management relates to a matter of clinical judgement, which goes to the heart of medical practice. The adequacy of a midwife's clinical judgement is assessed substantially by reference to usual practice of comparable practitioners. As this Office has previously stated:[39]

> "However, even in relation to diagnosis and treatment, medical opinion is not necessarily determinative.[40] I am not bound to accept expert opinions uncritically.[41] It is open to HDC to hold that the standard acceptable to the profession was nonetheless not reasonable. Ultimately the reasonableness of any standards adopted by the medical practitioner is for the Commissioner to determine, taking into account usual practice, as well as patient interests and community expectations.[42] In the leading decision of *Bolitho v City and Hackney HA*, the House of Lords stated:[43] 'If, in a rare case, it can be demonstrated that the professional opinion is not capable of withstanding logical analysis, the judge is entitled to hold the body of opinion is not reasonable or responsible.'"

118. In my view, the standard for a midwife in Ms D's particular circumstances, as expressed by Mrs Stanbridge, is not reasonable. Ms D was a midwife with over 22 years experience. She says that "had concerns all along" about the baby, noting that the CTG showed "poor variability consistently" and alerted Dr E to her concerns. Although she said she believed she had no firm evidence to support her concerns, in my view in light of her mounting concerns Ms D had an obligation to contact the consultant when the obstetric registrar did not respond appropriately to the non-reassuring CTG. My view is supported by the DHB policy and the midwives' Code of Ethics. The DHB policy states "All practitioners should consult with more experienced staff if there is uncertainty or cause for concern"[44]. The midwives' Code of Ethics provides "Midwives are autonomous practitioners regardless of the setting and are accountable to the woman and the midwifery profession for their midwifery practice … Midwives take appropriate action if an act by colleagues infringes accepted standards of care".

119. As this Office has stated:[45]

[39] See: www.hdc.org.nz 08HDC07350
[40] *B v Medical Council of New Zealand* 8/7/96, Elias J, HC Auckland HC11/96.
[41] Skegg and Paterson, *Medical Law in New Zealand* (Brookers, Wellington, 2006), ch 4, p114.
[42] *Lake v Medical Council of New Zealand* 23/1/98, Smellie J, HC Auckland, HC123/96.
[43] [1977] 4 All ER 771, 779 (HL).
[44] Policy issued 16 August 1999 and revised 10 May 2005. Following this complaint in June 2010 the DHB drafted a much more detailed policy "Communication when Clinical Points of Difference".
[45] See: www.hdc.org.nz 08HDC04311 at p24. See also 04HDC04652, 03HDC16282 and 01HDC10714

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> "Experienced senior nurses who are concerned about a patient should feel able to discuss that patient's care directly with a consultant if they are uncomfortable with the appropriateness of junior doctor management. …
>
> This is why good support systems (including the safety net of vigilant senior nurses and readily available consultants) are so crucial."

120. I appreciate that as a registrar, Dr E would not be considered a junior doctor. Recognising this may have caused Ms D uncertainty about her assessment of the wellbeing of this baby. However, midwives are responsible for their own practice. Experienced midwives who are concerned about a patient should discuss that patient's care directly with a consultant if they are uncomfortable with the appropriateness of a registrar's management. I note that the Midwives' Code of Ethics provides that "Midwives have a responsibility to uphold their professional standards and avoid compromise just for reasons of personal or institutional expedience". I do not consider being tired or fearing a reprimand justifies inaction in such a circumstance.

Summary

121. Two expert midwives, Ms Yates and Mrs Stanbridge, have provided differing advice on this case. Ms Yates considered that inadequate monitoring of the fetal heart rate led to fetal hypoxia and the subsequent death of Baby A. However, Mrs Stanbridge was of the opinion that Ms D's actions through the course of Mrs A's labour and the baby's birth were reasonable and that she met the midwifery standards expected by seeking medical review. Advice on these events has also been provided by obstetricians Associate Professor Jenny Westgate and Dr Ian Page.

122. It is generally accepted as a matter of law that the standard of midwifery care should be judged by a midwife's peer, and not by other health professionals, such as obstetricians.[46] ACC's role is to ascertain if there was a causal link between the treatment provided and the injury incurred. My role is to gather information to assess whether the service was provided with appropriate care and skill and met the standard.

123. To assist me to do this, I sought, and took into account, advice from the provider's peer, in this case an independent midwife. I am satisfied that when Ms D doubted her expertise in interpreting the CTG trace and felt she was at the limits of her knowledge, she acted appropriately in consulting with the duty obstetric registrar. She repeated her concerns and requested that he again review Mrs A and the CTG.

124. However, Ms D did not record any details of the communications she had with Dr E about her concerns. She said she kept asking him to reassess the CTG trace because of her "gut feeling" that things were not going well. She had a duty to record the details of her concerns and communications with Dr E. Despite Dr E's assurances that the CTG trace was not pathological, Ms D, by her own admission believed Baby A was in trouble.

125. Ms D was aware that meconium had been present after Mrs A's membranes were ruptured. Ms D thought the CTG showed "poor variability consistently, with the

[46] See footnote 35.

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baseline hovering around 160/170 mark" and she was sufficiently concerned about the CTG readings to call Dr E four times. She said she had an "intuition/gut feeling" that things were not progressing well and that, at 4.14 am, she thought "Whoops got a problem". Ms D said she "had concerns all along" but "didn't have [the] energy to have [a] series of conversations with the doctor" because she was exhausted. She also recalls having "spent the latter part of the shift feeling disempowered and fearful of the outcome of the delivery. …"

126. In my view, Ms D had a duty to strongly advocate her concerns to Dr E, and when her concerns were not heeded and she still believed that there was a problem, she should have told Dr E that she intended to contact the on-call consultant, Dr G, directly for a second opinion and done so.

127. It is my opinion that Ms D did not provide services with reasonable care and skill and breached Right 4(1) of the Code.

Opinion: Breach — Dr E

128. Mrs A's baby had been identified as being large for dates, and she was advised that because of the risk that posed to her and the baby from obstructed labour and haemorrhage, she should deliver at a secondary care maternity facility.

129. Mrs A transferred to the hospital maternity unit from the local maternity unit (where she was initially checked by midwife Ms C), in established labour, at 2am. Obstetric registrar Dr E checked Mrs A at about 2.40am, noting that she had gone into spontaneous labour at 7pm, and that at the time of examination, her cervix was 5–6cm dilated and fully effaced with bulging membranes. Dr E ruptured the membranes to encourage the progress of labour, and noted that the draining liquor was meconium stained. Dr E advised midwife Ms D to continue to monitor Mrs A by CTG for ten minutes, and then if there was no problems she could go into the bath to try hydrotherapy for pain relief, where she could be monitored intermittently by auscultation.

130. Dr E noted that Mrs A progressed satisfactorily in the seven and a half hours she had been in labour. He had recorded the meconium in the liquor, the suspicious CTG (one non-reassuring feature), ensured that Mrs A had intravenous access, and that all relevant blood work was done. In his response to HDC Dr E stated that he also ensured that continuous CTG monitoring was in place and told Ms D that he planned to reassess the progress of the labour in three hours to ensure adequate progress of cervical dilation. In addition, he said, "My expectation was also that the midwives would be alert to any concerning features e.g. decelerations, change in baseline rate, or reduced beat-to-beat variability in the meantime and would advise me accordingly".

131. The DHB policy requires all cases of meconium-stained liquor to be monitored continuously by CTG. Dr Page said that Dr E's assessment at 2.40am was appropriate

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but he seemed to have ignored the unit policy of continuous monitoring of all women with meconium-stained liquor. In Dr Page's opinion, Dr E should have started continuous CTG recordings at that stage.

132. Dr E was called to assess Mrs A at 4.10am and contacted again at 4.20am. It is clear, from the fact these calls were made, that the midwife was worried about the baby's wellbeing. Dr E diagnosed maternal dehydration and instructed that intravenous fluids should be commenced. In his opinion the fetal heart rate was fast but not pathological. Dr Westgate stated that she knows of no circumstance when maternal dehydration would cause such an abnormal tachycardia. However, Dr Page advised that Dr E's assessment and treatment was in accord with the unit's policy.

133. If, in fact, Dr E's diagnosis was correct, and the fetal tachycardia was caused by maternal dehydration, Dr Page advised that "many obstetricians and midwives would expect to see an improvement in the CTG within 30 minutes of initiating treatment, and would review the situation if this had not occurred". I note Dr Page's view that Dr E should have told the midwife when he expected the fetal heart rate to return to normal. Dr E should have returned to assess the results.

Discussions between Ms D and Dr E

134. As already noted, there is considerable disparity between Dr E and Ms D in their recollection of what was discussed about Mrs A's CTG and the progress of her labour.

135. Ms D advised HDC that she had several discussions with Dr E between 4.30am and 6.30am, voicing her concern about the CTG, the possibility of shoulder dystocia and the need to consider proceeding to Caesarean section.

136. In contrast, Dr E stated, "I cannot remember the midwife with whom I was working having any concerns or considerations about needing to consult the Obstetrician on call. I am fairly certain that she did not, nor do the notes suggest that she did." Dr E said that he had gone over these events many times, but does not recall Ms D asking about a Caesarean section. Dr E said that he did not consider contacting the consultant on call, because he considered Mrs A was progressing normally through the first and second stages of labour and the CTG was satisfactory.

137. I am unable to reconcile the differences in the information that I have been provided with regarding the additional discussions, especially as there is no relevant documentation. However, it is evident that Ms D did have concerns because she called Dr E four times to review Mrs A. Dr E has also confirmed that at 4.20am Ms D alerted him to the raised baseline of the CTG.

138. Associate Professor Westgate commented that when Dr E reviewed the CTG at 6am he may have been reassured by the lack of contact from Ms D since 4.20am. She advised that at this time the CTG baseline was 160bpm to 165bpm and the variability was reduced but not absent. Dr E recorded in the clinical records that the baseline was 150bpm and variability was normal. Associate Professor Westgate commented that had he looked back at the preceding CTG she would have hoped that he would have been alarmed by what he saw. She commented that this was a classic case of "trying to normalise an abnormal CTG".

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139. Dr Page said that Dr E misread the CTG tracing and failed to notice it had been abnormal for 90 minutes, and his advice to Ms D to continue as before was incorrect.

140. Since these events, Dr E has reviewed Mrs A's notes, the CTG trace, and recognised where errors occurred. He has talked about these errors with senior colleagues and now recognises the stages where he needed to take urgent action to assess the baby's wellbeing by both fetal blood sampling and initiating delivery if necessary. Dr E has also acknowledged that he did not look back to the earlier CTG tracings when he examined the 6am trace, which he found reassuring.

Summary

141. Dr E failed to follow the DHB unit policy that incorporates guidelines set by the Royal Australian and New Zealand College of Obstetricians and Gynaecologists. He did not follow up on whether Mrs A's treatment for dehydration had been effective. Nor did he tell the midwife when he expected the fetal heart rate to return to normal. Furthermore, he did not review earlier CTG recordings when he was asked to review the tracing at 6am.

142. Mrs A had the right to services provided with reasonable care and skill and which met professional standards. Dr E acknowledged that he did not reach that standard. While I note Dr E's submission that excessive fatigue contributed to the errors he made, in my opinion, Dr E must still take responsibility for those errors. Accordingly, in my opinion, Dr E's failings amount to a breach of Rights 4(1) and 4(2) of the Code.

143. I note that Dr E has gained significant learning from this tragic case.

Opinion: No breach — The District Health Board

Direct/vicarious liability

144. The DHB had a duty to Mrs A to provide maternity services that complied with the Code. It may be held directly liable for failure to meet this duty. The DHB may also be held vicariously liable for not taking all practical reasonable steps to prevent actions or omissions by its employees found to have breached the Code.

145. In this case Dr E has been found to have breached Rights 4(1) and 4(2) of the Code. At the time Dr E was a trainee with RANZCOG and had almost completed its four-year programme. He knew the whereabouts of the DHB's relevant practices and polices and was supervised by a consultant obstetrician. It advised that prior to this incident, Dr E had worked the usual standard rostered hours, including the usual night shift pattern, and that his roster pattern was no different to other obstetric and gynaecology registrars.

146. The hospital provided training on the interpretation of CTG and Dr E knew how to call the consultant and/or emergency teams for assistance. The DHB also had an obstetric consultant on call that Dr E could have contacted. Accordingly, it is my opinion that the DHB met its duty to Mrs A by providing appropriately trained and experienced staff, and adequate support services and did not breach the Code.

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Furthermore, Dr E was rostered on a standard obstetric and gynaecology roster, he was appropriately supervised, educated, and experienced, and a consultant obstetrician was readily available.

147. In my opinion, the DHB is not vicariously liable for Dr E's breaches of the Code.

148. Ms D has been found to have breached Right 4(1). At the time, she had been employed by the DHB for over 22 years and had worked in the delivery suite for five years. She also knew the whereabouts of the DHB's relevant practices and polices including to consult with more experienced staff if there is uncertainty or cause for concern. In my opinion, the DHB is not vicariously liable for Ms D's breach of the Code.

Adverse comment — The District Health Board

Maternity booking system

149. Mr and Mrs A's complaint highlights a breakdown in the referral system between local independent midwives and the hospital. When primary health providers refer patients to hospital they should have a reasonable expectation the referral will be actioned and they will receive some acknowledgement. However, it appears this was not the case at this hospital.

150. Over a year after these events, the DHB advised that its maternity booking system at the hospital was not reliable and LMCs did not always know whether or not their clients were booked in. This had been identified as an issue before these events but it took over 12 months before the DHB took steps to address the matter.

151. On 13 October 2009, the DHB Director of Midwifery informed the local midwives that one central fax number would be used for antenatal appointments and consultations and that they would receive confirmation of bookings. I intend to ask the Director of Midwifery and the midwives to report back to me on the effectiveness of the new system.

Discussion between providers

152. While I have accepted, based on her actions, that it is likely Ms D had concerns which she acted on by contacting Dr E, I have been unable to make a finding regarding the extent to which Ms D discussed her concerns with him. Dr E cannot recall this and it is not documented in the records. I consider that this case reinforces the importance of documenting all discussions between providers.

153. As I stated in a previous opinion:[47]

> "[T]here was a lack of action at the stage when Dr F's management should have been questioned and when concerns about the care being provided should have

[47] 09HDC01146 28 April 2011.

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been escalated to the on-call consultant. DHBs and senior practitioners need to encourage a culture where it is acceptable and even commonplace for questions to be asked, to and from any point in the hierarchy, at any time."

154. It is very disappointing that Ms D felt unable to pursue her concerns further, and to advocate more actively for Mrs A and her baby, Baby A. In my view a professional who has concerns about the welfare of a patient should take action. Ms D should have contacted Dr G directly.

155. It appears the professional hierarchy may have got in the way of good team work and the best interests of the parents and baby. Ms D, Dr E, and the DHB should all reflect on this.

Recommendations

The DHB
I recommend that the DHB:

- include in its training and induction for all staff information that the practice of asking questions and reporting of concerns is expected and accepted from all members of the multidisciplinary team;

- supply a copy of the training and induction material, and report to this Office by **30 March 2012** on the steps taken to ensure there is a culture that encourages these actions;

- provide to this Office a report on compliance with the "Communication when Clinical Points of Difference" policy by **30 March 2012**; and

- report to this Office on the antenatal booking process and supply a copy of the relevant training and induction material by **30 March 2012**.

Follow-up actions

- A copy of this report will be sent to the Medical Council of New Zealand and it will be advised of Dr E's name.

- A copy of this report will be sent to the Midwifery Council of New Zealand and it will be advised of the names of the midwives.

- A copy of my final report, with the details identifying the parties removed except the names of the expert advisors, will be sent to the Accident Compensation Corporation, the New Zealand College of Midwives, the Royal Australian and

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New Zealand College of Obstetricians and Gynaecologists, the Maternity Services Consumer Council, New Zealand Resident Doctors' Association, and the Federation of Women's Health Councils Aotearoa and a copy will be placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

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Appendix A: Midwifery advice — Christine Stanbridge

"I am pleased to address the issues raised about the midwifery care of [Mrs A].

[Ms B] appears to have provided [Mrs A] with a good standard of care. She has taken a full history, she saw and assessed [Mrs A] at regular intervals, ordered, reviewed appropriate laboratory and ultrasound assessments, and discussed results with [Mrs A] providing treatment, explanation and advice, has included referrals for issues that arose for [Mrs A] where input from other health professionals was appropriate.

Her documentation clearly lays out her care assessments, investigations, results, explanations, information, [Mrs A's] choices, plans of management, referrals, actions and outcomes.

At 37 weeks gestation [Ms B] identified a 'large for dates' baby on palpation of [Mrs A's] uterus. She ordered a Glucose Tolerance Test (GTT) as diabetes of pregnancy can be one of the reasons for a large baby. Her earlier screening for the possibility of diabetes had been unremarkable. At [Mrs A's] request the laboratory undertook a polycose screening (a screening test rather than a definitive GTT on which a diagnosis can be made). This was normal. She also arranged a scan which indicated an "estimated baby weight of 4690grams at the 95th growth percentile for a baby of that gestation".

[Ms B] records at the subsequent visit to [Mrs A] on [date] 'discussed probable birth plan -> [hospital], IV luer (intravenous access), active management 3 stage (using medication and a technique to birth the placenta)'.

[Ms B] further describes in these contemporaneous notes that she attempted to get an appointment for [Mrs A] to see an obstetrician at the following day's [local] clinic. When this wasn't available she consulted with the on-call obstetrician and they planned the care that would be appropriate for [Mrs A].

[Ms B] describes "discussed with [Mrs A]", and that they undertook the first part of the plan discussed an internal examination to stretch the cervix with the hope of stimulating the release of natural prostins to help [Mrs A's] body prepare for labour.

Induction (part of the plan) dates were discussed and [Mrs A] chose the date that suited her best. Further visits followed with further 'stretch and sweeps'.

With [Ms B] having days off, arrangements were made for care while she was away, and arrangements were finalised for induction if baby hadn't come in the interim. In her 'Information for HDC' [Ms B] explains she advised [Mrs A] "it would be recommended that she deliver in a secondary care facility due to possible risks of postpartum haemorrhage (excessive bleeding after birth) and shoulder dystocia (difficulty birthing the baby's shoulders) which were emergency complications that could be life threatening". She elaborates further in the same letter once again in some detail.

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[Mrs A] recalls in her letter that "because the baby was large they may have to break baby's arm to get her out and that I may have a possible haemorrhage". These appear to be quite graphic explanations for the recommended change in [Mrs A's] birth plan. It seems [Ms B] gave [Mrs A] an explanation of the need for care different from that planned. [Mrs A] questions not being given, at this time, the option of a Caesarean delivery.

The common plan for an expected large baby is to allow labour to occur in the expectation the woman will be able to birth normally, as most large babies do. Given that some of these large babies need assistance with birthing, delivery at a base hospital is usually recommended. It would not be common practice to plan for a Caesarean delivery if there were no other indications.

[Ms B] offered appropriate advice in the likely care that would be offered, and in recommending a referral to an obstetrician. [Ms B] reports making normal arrangements for booking information to be forwarded to [the hospital's] maternity unit. She also recalls verbally passing on the relevant information to the midwife accepting the booking for an induction, and that the booking had been sent through the previous week.

It appears there have been other incidents of booking information not being received or filed in the appropriate place.

[Ms B] appears to have been thorough in her management of this identified potential for a problem, and it seems probable she did forward the relevant information to [the hospital], with back up basic information being available at their local primary unit, and in the woman's woman-held notes which documented clearly the plan of care.

[Ms B] appears to have informed her local practice, in particular [Ms C] who would be covering for her, of the issues and plan.

Since this event there is evidence the [local midwives] have negotiated with [the hospital] maternity unit to have a more reliable method of booking women at [the hospital].

[Ms C's] care
[Mrs A's] care was provided by [Ms C] when [Mrs A's] own LMC was on conference leave.

There appears to have been appropriate and adequate handover and this is reflected in [Mrs A's] contemporaneous MMPO notes. When called by [Mrs A], [Ms C] has attended [Mrs A] at [the local] maternity unit. The MMPO notes made at the time show an appropriate assessment to determine if [Mrs A] was in labour.

[Ms C] documented a deceleration during a contraction, but this does not appear to have recurred. It looks as if this was detected during intermittent auscultation, but may have been a CTG (cardio toco graph — a paper record of the baby's heart rate and maternal contractions). [Mrs A] was clearly in labour, and [Ms C] documents the plan for [Mrs A] to go to [hospital], and that she consulted with [Dr G], and notified

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delivery suite. Her later statement expands on this saying she discussed the issue of large for gestational age as well as a "query foetal heart deceleration".

[Ms C] appears to have been adequately briefed about [Mrs A's] situation, provided a full assessment of her, identified she was in established labour, notified both the medical and midwifery staff of [Mrs A's] imminent admission and the reasons for this, informed [Mrs A] to make her notes available to [hospital] staff if need be, and documented this.

Ms D's care
Ms D commenced her care of [Mrs A] when she received a call from [Ms C], and her physical care once she arrived at [the] Hospital at about 2am.

There does not appear to have been any communication between the obstetrician who accepted the referral, nor from the Registrar, to [Ms D] that [Mrs A] was coming, nor the reasons. [Ms C] believes she discussed with the midwife (presumably [Ms D]) the reasons for [Mrs A] birthing at [the hospital].

It appears the unit was very busy with [Ms D] providing 'second midwife' care to three other birthing women through the shift, "didn't stop all night", all the rooms were full.

[Ms D] records [Mrs A's] arrival in the unit and that she commenced a CTG. On the CTG she records [Mrs A's] temperature, pulse and blood pressure (all normal). From 2am [Ms D] documented seeing and assessing [Mrs A] half hourly (2am, 2.30am, 3am, 3.30am, 4am) until she required more care by way of an intravenous line and fluids, use of Entonox (50% nitrous oxide, a pain reducing gas, and 50% oxygen), and internal examination.

I assume she was in continuous attendance from about 6am or earlier, when [Mrs A] was in advanced labour.

From the photocopies I have received it appears she has undertaken periods of CTG assessment at what is recorded on the CTG as about 1.50am (unsure whether she was admitted at this time, or monitor not recording corrected time. I have assumed these are accurate times):

• about 2.15 to 2.35am
• about 2.45 to 2.55am
• about 4.14 to 4.38am
• about 4.40 to 4.44am
• brief time, possibly 4am and then 5am to 5.l5am
• 5.30am to 5.40am
• 5.53am until 6.50am

[Ms D] recalls the CTG being continuous from 4.l4am; this is not present in my photocopies.

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In her commentary [Ms D] records [Mrs A's] contractions; her movements (including in and out of the bath); what she is experiencing; baby's heart rates between the CTG tracings (eg at 3am, 3.30am, 4am); the commencement and on use of Entonox; intravenous fluids; internal examination; and progress with pushing. The Registrar records seeing [Mrs A] at 2am, 4am, 6am and following being called to assist with delivery of baby's shoulders.

The CTG records are not easy to assess in isolation and in retrospect.

It does appear the initial trace shows a baseline of about 140 with possible decelerations. These are possibly variable. [Mrs A] is contracting frequently.

The next trace could also be read, in retrospect, to be less than reassuring (baseline 150, 160, minimal beat-to-beat or variability, possible decelerations). This is hard to be sure when there is no record of the rate in relation to contractions. [Ms D] explains on the CTG and that she was not able to maintain the position of the tocogram head (strapped to the woman's abdomen to pick up change in pressure which indicates the timing of contractions) to record the contractions accurately.

The beginning of the second section of CTG shows a short period with very little to nil variability with a rapid rate (over 180). This tachycardia (fast heart rate) appears to continue until about 5.30am when it remains fast but about 160 beats /minute, variability appears to be reduced through most of this time. There are no clear accelerations, nor decelerations, although it is possible there are small decelerations on the trace 5.53am to 6.10am.

From 6am when [Mrs A] commenced pushing, it is unclear what the baby's heart rate was doing, with (common) loss of contact. There are short periods of persistent tachycardia, later it appears the baseline has dropped to around 120. During this time the staff may well have been able to hear what the heart rate was doing, even though it was not recording clearly.

Interpreting CTGs is not always easy and auditory assessment of the heart rate, observation of the mother and palpation of the uterine activity can all add to the picture, as can progress in labour. With the value of hindsight, these do not appear to be reassuring periods of tracing.

[Ms D] recalls her assessment of the CTG encouraging her to seek review of [Mrs A] from the Registrar. He records progress including an acceptable CTG, and good dilatation of the cervix with the presenting part at 1cm above the spines. He artificially broke the membranes, and meconium liquor was noted. There was no further note of liquor draining.

[Dr E] notes her delivering at "[the hospital] as ?macrosomia" (large baby). He made a plan for pain relief as required, and to reassess in about 3 hours. [Ms D] recalls being reassured by this assessment.

The Registrar again reviewed [Mrs A] at 4am to check dilatation related to her feeling bowel pressure. His assessment showed increased dilatation and descent of the head.

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He approved an epidural should [Mrs A] request one. The assumption is he was happy with the recordings to date.

[Ms D's] notes at the time baby's tachycardia at 4am noting also the reduced reactivity. She records "review by Reg" and intravenous fluids were commenced (dehydration may have impact on the baby's heart rate). She continues to note the on-going tachycardia.

A brief internal examination after 5am shows further progress but that it is not yet appropriate to push. [Ms D] recalls voicing her concern to the Registrar several times that the CTG was less than optimal. She believes her concerns were dismissed.

By 6am [Mrs A] is again assessed by the Registrar who finds she is ready to push but is impeded by pain. He documents excellent progress and anticipates she will birth normally (SVD spontaneous vertex delivery) in the next one to two hours. The head is in a good position and well down, there is no moulding (overlapping of the baby's skull bones to allow easier passage through the maternal pelvis. This, along with good progress in labour, would suggest baby will be able to birth normally i.e. not too big to come though the pelvis). His implied assessment of the CTG is that it is reassuring ("baseline 150, normal variability, no decelerations"). [Mrs A] appears to make good progress.

At 7am baby's head is born. It appears about this time it was appreciated the CTG tracing may in fact be the maternal pulse and not the baby's heart rate, perineum was "tight so an episiotomy was cut" (to enlarge the vaginal opening), and manoeuvres were tried to dislodge the baby's shoulders. The baby was delivered by the Registrar at 7.11am.

Through this time assistance was sought from the Registrar, and the paediatric team and morning midwifery staff were present.

The progress in labour would not have led one to expect problems with birthing. Although shoulder dystocia remained a possibility, steady progress in both first and second stage of labour, including descent of the head, the position (direct OA at 6am), no moulding (shaping of the head), would have suggested it was reasonable to expect normal birth.

In retrospect it would appear baby has shown signs of distress through labour. This would have left [Baby A] with minimal reserves to cope with delay in her actual birthing. It is possible the latter part of the CTG recording was maternal, with the uncertainty then of what baby's heart rate was as she entered the final stages of birthing when the baby is potentially most vulnerable.

The presence of a retroplacental clot with the delivery of the placenta suggests an antepartum haemorrhage which could have contributed to baby's poor condition. However, [Mrs A] does not appear to have been overtly shocked, nor in continuous pain, although maternal pulse soon after birth was not dissimilar to the CTG heart rate in the latter half hour or so of recording. Thus there may well have been a number of issues happening for [Mrs A] that influenced the final outcome for [Baby A].

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Advice
When a midwife has concerns about any aspect of assessment or care with a woman in labour it is appropriate for her to seek advice/refer to a midwife more experienced than herself, and/or make a medical referral.

The New Zealand College of Midwives publication *Midwives Handbook for Practice*:

> "Standard six
>
> The midwife
>
> - identifies deviations from the normal, consults and refers as appropriate;
> - works collaboratively with other health professionals
> - has the responsibility to refer to the appropriate health professional when she has reached the limit of her expertise."

[Ms D] appears to have assessed [Mrs A] appropriately on admission. She has been unable to find her booking details but has access to her MMPO notes which [Mrs A] has brought with her. Despite being busy [Ms D] was with [Mrs A] at regular and frequent intervals, and been diligent in recording [Mrs A's] labour progress and baby's heart rate.

[Ms D] recalls asking the Registrar to review [Mrs A] soon after the initial trace was recorded, and of being reassured by his assessment and plan to allow labour to progress normally.

With this reassurance [Ms D] has managed [Mrs A's] labour normally i.e. discontinued the CTG, mobilised [Mrs A], and supported her in her decision to use the bath as a form of pain relief.

[Ms D] has however used the CTG to review the baby's heart rate a number of times. She appears to have been concerned by some of the traces, but again been reassured by her colleague's interpretation of the CTG recordings being normal, and that rehydration would correct the tachycardia.

[Ms D] recalls having "several discussions with the Registrar between 4.30 and 6.30am, voicing my concern that the CTG was less than optimal". It appears he believed they were satisfactory, and saw no reason to intervene. At the six o'clock review by the Registrar, when the foetal tachycardia was clearly present, he was again reassuring of the CTG acceptability.

Even if [Ms D] did not specifically ask for the registrar to contact the obstetrician, she should have been able to rely on the registrar's assessment of the CTG and overall situation, and his plan of care. If the registrar is inexperienced there is normally close oversight provided by the obstetrician. If the obstetrician trusts the registrar's work, it seems reasonable for the midwife to be able to place the same reliability on his opinion.

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In this situation, regardless of the conversations, the registrar documents seeing [Mrs A] and reviewing her situation (including her CTG) at 2.40am, 4am, and 6am.

[Ms D] recalls being ill at ease with the foetal heart. It appears [Ms D] has recognised a potential problem with baby's well being, and has referred to the Registrar on a number of occasions though the labour. In the circumstances the unit was very busy, and she had no midwifery colleague to support her or with whom she could consult. She has been in an unenviable position of doubting her own assessments and having to accept her colleague's interpretation of the CTG.

When difficulties have been experienced with the birth of the baby's shoulders, appropriate assistance has been sought.

When [Ms D] has reached the limit of her expertise and considered there is a problem, she has referred to the person designated to whom she should address such concerns. She has done this repeatedly. In doing so she has met her obligations.

Additional questions
Question: Should the midwife have arranged fetal blood analysis?

Answer: I assume you mean foetal scalp blood sample in labour? That is absolutely a medical decision (one the Reg is unlikely to have even considered since he thought the trace was fine) and procedure. Not a midwifery decision at all.

Question: Should the midwife have attached a scalp clip?

Answer: No, I don't believe so. She had pretty clear foetal heart tracing — I don't think a scalp clip would have made it any clearer there was an issue.

It certainly has a place when there is a poor (as in difficult to hear or see) baby heart tracing and the carer is unsure what is happening.

It may or may not have alerted her earlier that she might have been hearing maternal pulse at the end of the trace. However it is well documented and I've had the misfortune to see, that the FSE (foetal scalp electrode) can happily pick up the maternal pulse even when the electrode is attached to baby. Thus it can in fact be a false security (not that that should limit its use).

Question: A midwife has real concerns about the health of a baby given:

1. The baby is large and descending the birth canal albeit slowly. The M/W considers the effects of the pressure on baby and cord.
2. There is fetal tachycardia and the CTG is abnormal.
3. The risk and possible consequences to the baby are high.
4. The obstetric registrar orders intravenous fluids.

The question is given the above would a midwife ever consider going over the registrar's head and calling the consultant directly?

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Answer: Thanks for the opportunity to respond to your suggested scenario.

I think the first thing to think about in this case is, as always, it is easier to see issues given what we know now. Thus it is easier to see more clearly what were almost certainly warning signs baby was not happy. About the scenario you've set out.

My recall is that [Mrs A's] labour progressed in a normal manner and time with steady progress and descent.

The size of the baby is unknown. The scan suggested a large baby, but the accuracy of scans in latter pregnancy and for larger babies has a large variability in accuracy, so, while they were mindful baby might be bigger, there was no indication in labour that this was impeding labour or progress in any way.

Interpreting foetal monitoring remains an inexact science but provides indicators of foetal well being.

There was clearly foetal tachycardia; an indication of possible foetal distress. It can also be present with an active baby, or with maternal dehydration or infection.

The risks and possible consequences to baby are much clearer after the event.

My understanding is that [Ms D] was ill at ease about the CTG trace, repeatedly checking with the Registrar that it was in fact okay.

I think this is the crux of the question you ask. When should/would a midwife go over the registrar's head and contact the consultant obstetrician?

Each facility will have protocols on managing non reassuring CTGs.

While they may indicate midwives should consult with the obstetrician, this is, in most facilities, done by referring their concerns to the registrar. S/he then assesses the situation and plans the care to be provided. S/he in turn will have protocols for when to consult with their consultant.

Where this is the norm, and obstetricians are not on the floor, it would be very unusual to over-ride the registrar and contact the consultant direct. This would be even more difficult at night, on weekends, or Public Holidays.

Some units (usually the busier ones) have obstetricians who are physically available in the birthing area, at least for some times of the day. It is then obviously easy to approach them directly.

If this was the situation [Ms D] was in, then it would be reasonable to expect her to have approached the consultant.

However I understand she was in an invidious position where existing systems and norms would expect her to heed the advice she has sought from the registrar.

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It is very difficult and not normally expected the midwife would challenge the registrar's decision. She has approached him and should be able to rely on his assessment and plan. It means the midwife needs to be confident enough of her interpretation of the situation to defy accepted processes.

In summary: the answer to your question is; in theory, she could have gone over the registrar's head, but in practice it isn't what one could reasonably expect her to do, especially as she was unsure herself. I believe even an experienced confident midwife would find it difficult to break with normal expectations of chain of authority."

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Appendix B: Obstetric advice — Dr Ian Page

"For your records, I am a practicing obstetrician & gynaecologist and have been a consultant for 22 years. I have been employed as such by Northland DHB for ten years.

You have asked me to assess whether or not [Dr E] and [the] DHB provided [Mrs A] with an appropriate standard of care. I think that both [Dr E] and [the] DHB did not provide [Mrs A] with an appropriate standard of care.

In reaching this conclusion I have read:

- the complaint from [Mr and Mrs A] (pages 1–4)
- the response from [Dr E] dated 26 January 2010 (pages 5–11)
- the response from midwife [Ms D] dated 13 October 2009 (pages 12–34)
- the response from midwife [Ms B] (pages 35–90)
- the response from [the] DHB dated 7 October 2009 with accompanying CTG
- Recording Policies from 2005 and 2009, and the CTG recordings from the case (pages 9l–115)
- the response from [the] DHB dated 15 December 2009 (pages 116–124)
- the response from [the] DHB dated 15 June 2010 (pages 125–128)

[Summary of request and documentation provided omitted for brevity]

You have asked me to comment specifically on the following:

1. *Did [Dr E] provide [Mrs A] with an appropriate standard of care?*

   [Dr E] did not provide [Mrs A] with an appropriate standard of care, a fact he has already recognised and for which he has apologised. Given the level of seniority he held at the time, and the gravity of the error, I think this would be viewed with at least moderate disapproval by his peers (i.e. registrars of similar experience and training).

2. *Was [Dr E's] 2.40am assessment of [Mrs A] on [date] of an appropriate standard?*

   [Dr E's] clinical assessment was undertaken appropriately. However he appears to have ignored the Unit Policy which recommended continuous CTG monitoring for women with meconium staining of the liquor.

3. *Was the advice [Dr E] gave to midwife [Ms D] at this time appropriate?*

   No. I believe he should have recommended continuous fetal heart rate monitoring in light of the meconium-staining of the liquor seen at that time.

4. *Was [Dr E's] 4.20am assessment of [Mrs A] of an appropriate standard?*

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This assessment was appropriate, as the CTG was recognised as being suspicious by [Ms D] and also by [Dr E]. They followed the unit policy of considering causes, and then instituting treatment (rehydration).

5. Was [Dr E's] treatment plan at this time appropriate?

See (3) above. No time limit was given, but there is no evidence available to support a definite limit that should have been imposed. However many obstetricians and midwives would expect to see an improvement in the CTG within 30 minutes of initiating treatment, and would review the situation if this had not occurred.

6. Was [Dr E's] 6am assessment of [Mrs A] of an appropriate standard?

No. [Dr E] mis-read the CTG, and failed to notice it had been abnormal for the previous 90 minutes.

7. Was the advice [Dr E] gave to [Ms D] appropriate?

Had the CTG been normal then the advice would have been correct. As it was not, the advice was therefore incorrect.

8. Was there anything else [Dr E] should have done in relation to his assessment of [Mrs A] and the CTG and communicating with [Ms D]?

[Dr E's] letter of 11 May (page 11) acknowledges that he may not have looked at the CTG recorded prior to the point at which he reviewed it at 6am — had he done so the prolonged abnormality might have been recognised. Beyond that his care seems to have been appropriate.

[The] DHB

1. Did [the] DHB provide [Mrs A] with an appropriate standard of care?

No. The care provided initially by midwife [Ms D] (a DHB employed midwife) did not comply with the DHB's policy for CTG monitoring. She should have queried [Dr E's] recommendation that intermittent auscultation was satisfactory. In addition the CTG was more abnormal when she discontinued it at 0255 than when she first queried it at 0240, and this does not appear to have been recognised. This may be a reflection of the workload in the unit at that time, but the responsibility for adequate staffing to deal with the workload remains that of the DHB.

[Ms D] did not make any note of calling [Dr E] back to express concerns about the CTG between 0500 and 0600, nor did she document that she had any concerns during this time. However, the CTG was clearly abnormal during this period, with a baseline tachycardia and reduced variability. It is not possible to determine whether the decelerations between 0530 and 0550 were early or late due to the poor quality of the photocopy sent for review.

The CTG from 0610 is uninterpretable, mainly due to loss of contact when [Mrs A] was pushing. Given that there was an indication for continuous CTG monitoring, this loss of contact should have been addressed by the application of

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a fetal scalp electrode. This usually provides a trace that is continuous and interpretable. Had this step been undertaken, the true pattern might have been recognised. As far as I can tell from the photocopies made available, the trace between 0600 and 0700 appears to show a borderline tachycardia, reduced variability and deep late decelerations. This should have been recognised as ominous, and the registrar informed of that and asked to review the case again.

2. *Did [the] DHB have adequate systems in place to ensure that women in labour were adequately monitored?*

Assuming the question refers to monitoring of fetal well-being, the answer is yes. The policy is quite comprehensive, with the minor exception of any guidance about obtaining an interpretable trace.

3. *Was there anything else that [the] DHB could have done to prevent this incident from occurring?*

I don't think so. [Dr E] wonders if he was over-tired, but there is no clear way of identifying this.

[Ms D] notes she felt disempowered, and that her colleagues were too busy to offer any assistance or advice. The DHB has now developed a policy *"Communication when Clinical Points of Difference"* to try and address her concerns. However its absence could not be said to have contributed to the outcome.

In conclusion, I believe mistakes were made in interpreting the CTG.

[Dr E] has apologised for this, and I note he had already undertaken suitable training in this. Like him, I can only wonder why he made the mistakes when he clearly had the necessary knowledge to avoid them."

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